SISKIYOU COUNTY GENERAL PLAN

CIRCULATION ELEMENT

CHAPTER 4

CIRCULATION ELEMENT

The Circulation Element is designed to be used as a working document with the Land Use Element. It contains policies and standards to be applied to right-of-way acquisition and road development and an overlay map (Map 14) showing circulation facilities. This information should be useful in identifying potential problems in the review of specific projects and in the scheduling of future public works programs.

This document is not intended to compete with the biennial Regional Transportation Plan[1] which seeks to coordinate the three levels of transportation planning (state, county and city) in terms of goals, policies and capital improvement programs. The Circulation Element relates both to the short-term planning of the Regional Plan and to the Land Use Element and other Elements of the County General Plan.

Generally, roads in Siskiyou County provide adequately for the movement of people and goods and for the necessary access to property. The accident rate appears to be consistent with population growth and recreational interest.

The rate of accident increase, as determined from County and State records,[2] appears to be greater in the urban areas. It is important to review trends and attempt to improve conditions where accidents are occurring if it is at all possible. As roads originally designed to rural standards become more heavily used, improvements will need to be made. The projected growth for urban areas in Siskiyou County to 1990 is twice the growth rate anticipated in rural areas.[3] The 2,000 plus new urban households will add approximately 15,000 or more daily trips (ADT) to the local street system.

Footnotes on Page 35

Both urban and rural roads will experience greater pressure in the tourist season (June through September) as California and Oregon's population increases and as people become more interested in the enjoyment of outdoor recreation.

The following format presents the roads and highways component of the Circulation Element first, including those facilities under State, County and other jurisdictions (private and U.S. Forest Service). The county road system will be studied in greater depth and specific policies are addressed under county permit authority. The final parts of this chapter deal with airports, railroads, and public transportation.

I. Roads and Highways

A. General Discussion

Roads and highways generally provide for the movement of motorized vehicles for many purposes (work, shopping, social, recreation goods movement, emergency services, etc.). They also provide access to public and private property. The amount or volume of traffic is related directly to land use. The introduction of a new industrial plant or a shopping center will have a direct impact on the volume of traffic converging to the new facility. In this sense, the facility is a generator of traffic and it may be necessary to plan for several points of access, widened and realigned street sections and traffic control measures in order to accommodate the development into the existing street system. Depending on the cultural environment and the characteristics of the development, pedestrian off-site improvements may also be needed.

The extent of road improvement needed as a condition to subdivision approval must be consistent with the foreseeable housing density of the area and the Siskiyou County development code. The standard of improvement applied should be adequate to prevent the road from becoming a liability to the neighborhood and the county.

1. County of Siskiyou

Publicly maintained roads not under the jurisdiction of the State of California, Federal Government, or incorporated cities are the maintenance responsibility of the County of Siskiyou.

2. State of California

Caltrans is responsible for the operation of eight state and interstate routes and maintains nearly 320 miles of highways in the county.

3. U.S. Forest Service Roads

The five National Forests in Siskiyou County provide roads for a variety of reasons and activities. Under the multiple use concept, access is required in order to harvest timber, provide recreational opportunity, fire protection and suppression and forest management activities. Because of the arrangement of public lands interspersed by private enclaves, the Forest Service generally allows permanent access over public lands to current owners of private lands.[4] Because development of private lands within the National Forest would increase the demands upon Forest Service roads and the cost of maintaining them, the Forest Service is somewhat cautious in recommending subdivision (including parcel division) and requires agreements to pay for road improvements.

4. Private Roads

Siskiyou County has review authority over developments, including the design and improvement of private roads in connection with each development proposal. Proposed private roads are, therefore, subject to the requirements of the Subdivision Ordinance, minor land division procedure (including parcel division), use permits, variances and timber management plans.

The Planning Commission and the Board of Supervisors must, by law, consider the ultimate impact of the development and the future demands, including the legal rights of others for access over the road system, in approving and requiring particular road standards. In such approvals, it is appropriate to require road improvements consistent with the standards for public roads in the Land Development Manual and as recommended by the County Public Works Department.

Requiring off-site road improvements from proposed development served by an existing private road is a particularly difficult problem. In many instances, existing private roads were not subject to improvement conditions and roads have deteriorated over time as use has increased. As development on land serviced by private roads intensifies, the use of the private roads intensifies. The cumulative impact resulting from intensifying development creates a situation whereby private roads are not adequate to serve as access. This situation creates traffic safety problems, and

financial problems if the county, because of property owner demands, accepts private roads into the county maintained road system. Therefore, it is imperative that the county require private road standards that can accommodate not only existing and/or proposed development, but the full cumulative development potential of the area to be serviced. It is also noted that consideration of cumulative development impacts on roads is a legal requirement of the California Environmental Quality Act. The problem of private roads can be substantially alleviated by a homeowner's road maintenance association. Conversely, where private roads are strictly easements with no maintenance provisions, all of the impacts listed above are significantly intensified. All subsequent developers, intensifying use of an existing easement, should be required to upgrade the roadway within the easement to accommodate the additional traffic and to contribute to future maintenance costs.

B. Road Classification

The roads and highways of Siskiyou County may be functionally classified into five categories.

1. Freeway - (Interstate 5). Full access control.

2. Arterials - An arterial highway serves primarily through traffic on a continuous route. State routes are shown on the Base Map and identified by number. County arterials are shown on the Base Map and Map 14 (Transportation Facilities and Data) and are identified by name or number. The only arterials in Siskiyou County are the state highways and the federal aid secondary and federal aid urban systems.

3. Collectors - A collector serves at an intermediary level by accepting local street traffic and channelizing or directing it to an arterial highway. The collector roads shall consist of all of those roads in the county select system that are not classified as arterials.

4. Minor Roads - These facilities serve at the neighborhood level. Most function as minor collector streets and are not to be confused with local streets providing access to 20 homes or less.

5. Local Streets - These facilities provide access to subdivision lots of 20 homes or less.

The above system relates only partially to specific traffic volumes. In a rural county, the importance of a road may be judged by its ability to provide connections rather than its ability to accommodate high traffic volumes. Therefore, the existing minor roads do not relate directly to local and limited streets and the policies intended to govern right-of-way and capacity requirements.

C. Serving New Developments - Capacities and Levels of Service

Developments shall not exceed the ability of the roadway to service the volume of traffic to be generated taking into account both the proposed and existing development. Allowable service volumes may be predicted by use of the following procedures for calculating capacities and service volumes. In all cases, it shall be required to first provide a structural section based on an appropriate traffic index. When developments will add significantly to pedestrian volumes, pedestrian safety shall be considered when approving the development. Evidence of high accident rates, overloaded intersections or significant public concern for health and safety may be sufficient cause of limiting development.

The basic premise to be made for developments proposed along existing county roads will be that the developer shall make improvements to the county road providing direct access to his development. Improvements required shall be those necessary to improve the county road fronting the property (and the roadway off-site of the property if the development significantly increases traffic thereon) to provide for a service volume at level of service "C".

Dedication of right-of-way shall be required on all developments where adequate right-of-way does not already exist. Right-of-way widths shall be in accordance with those required under the section of "Circulation Policies," (Page 25).

1. Two-Lane Rural Highways - Capacity and Levels of Service

A. Capacity is defined as the maximum number of vehicles passing a given section of highway during a given time

period under prevailing roadway and traffic conditions, generally specified as an hourly volume.

The term "prevailing roadway and traffic conditions" is divided into two groups:

Roadway - Those features established by physical features of the roadway, and

Traffic - Those features that are dependent on the nature of traffic on the roadway.

The roadway elements are unchanging, barring reconstruction of the roadway, and have to be considered as factors affecting the ultimate capacity of an individual roadway. The critical elements requiring consideration for capacity on two-lane rural highways are:

1. Percent of passing sight distance
2. Average highway speed
3. Lane width
4. Lateral clearance
5. Grades

The traffic elements relate to the nature of traffic itself and can change or be changed at any time. Traffic elements include:

1. Percent of trucks and buses
2. Peak hour traffic
3. Traffic interruptions such as left turns, stop signs, etc.
4. Livestock, wildlife, etc.
5. Pedestrians, bicycles

B. Level of Service is generally defined as the qualitative measure of the effect of traffic flow factors such as speed and travel time, interruptions, freedom to maneuver, and driver comfort and convenience. Specifically, they are defined as follows:

Level A: Free flow - low volumes; maximum legal speeds; drivers can maintain their desired speeds; highly comfortable.

Level B: Stable flow - volumes and speeds controlled by physical features of roadway; drivers have reasonable freedom to select desired speeds; comfortable; recommended for rural

design standards.

Level C: Stable flow, but speeds and maneuverability are more closely controlled by higher volumes; still fairly comfortable; recommended for urban design standards.

Level D: Approaching unstable flow - speeds considerably affected by operating conditions; little freedom to maneuver; uncomfortable.

Level E: Unstable flow - momentary stoppages; very uncomfortable; volumes at or near capacity.

Level F: No flow - stoppages for long periods; intolerable comfort.

The County should not accept a normal level of service of less than Level C.

The generally accepted formula for computing capacities is taken from the Highway Capacity Manual published by the National Academy of Sciences in 1965.

A two-lane rural highway shall have a minimum of 18 feet of ~~paved~~ traveled way.

The formula for two-lane PAVED rural highways considering adjustments and for a given level of service:

SV = 2000 V/C WL TL

In Siskiyou County we have elected to compute service volumes for unpaved roads having a minimum of 18 feet of traveled way as follows:

The formula for 2-lane unpaved rural highways considering adjustments and for a given level of service:

SV = 1000 V/C WL TL

where:

SV = service volume (total for both directions/hour)
V/C = volume to capacity ratio including percent of passing sight distance adjustment
WL = adjustment for lane width and lateral clearance
TL = truck factor at given level of service

Tables for the various adjustments are available in the Highway Capacity Manual.

Example Calculation:

Ideal Two-Lane Rural Roads - Average Attainable Speed 60 -70 MPH

Given: 12 ft. lanes
10 ft. shoulders
Level terrain
Ideal alignment
100% passing sight distance
5% trucks

Determine: Service Volume for Level of Service C

Solution: SVA = 2000 V/C WL TL

Where:

V/C = 0.70 from Table 10.7 (Capacity Manual)
WL = 1.0 from Table 10.8 (Capacity Manual) and
TL = 0.93 from Table 10.9b (Capacity Manual)

SVC = 1302 veh/hr or 10,850 Average Daily Traffic (ADT)

* Assuming the peak hour traffic is 12% of Average Daily Traffic Peak Hour refers to a one hour period of time during the year (Generally the 30th highest hourly volume that is selected as the basis for an adequate design).

Example Calculation:

Rural Two 10 Foot Lanes

Given: Rural two 10 foot lanes, 4 foot shoulders rolling terrain alignment not ideal; 50% passing sight distance; 5% trucks

Determine: Service Volume for Level of Service A, C. and E

Solution: SV = 2000 V/C WL TL

Where:

Service Level A (Free Flow)

V/C = 0.135 from Table 10.7 (Capacity Manual)
WL = 0.70 from Table 10.8 (Capacity Manual)
TL = 0.87 from Table 10.9b (Capacity Manual)
SVA = 169 veh/hr or 1,408 ADT*

Service Level C (Stable Flow)

V/C = 0.450
WL = 0.72
TL = 0.83
SVC = 538 veh/hr or 4,482 ADT*

Service Level E (Unstable Flow)

V/C = 1.0
WL = 0.76
TL = 0.83
SVE = 1261 veh/hr or 10,513 ADT*

Actual field measurements indicate capacities exceed calculated volumes by 20-50 percent.

* Assuming the peak hour traffic is 12% of Average Daily Traffic Peak Hour refers to a one hour period of time during the year (Generally the 30th highest hourly volume that is selected as the basis for an adequate design).

Multilanes

The formula for service volumes on ordinary multilane highways is:

$$SV = 2000 \; N \; V/C \; WL \; TL$$

Where:

SV = Service volume (veh/hr total one direction)
N = Number of lanes (one direction)
WL = Adjustment for lane width and lateral clearances
TL = Truck factor at given level of service

Typical Example:

Given: Rural four lane highway, undivided, no access control
12 foot lanes
6 foot shoulders
Rolling terrain
55 mph alignment
5 trucks

Determine: Service volumes for level of service A, C, E

Solution: SV=2000 N V/C W TL

Service Level A

Where:

V/C = 0.1 from extrapolating Table 10.1 (Capacity Manual)
N = 2
WL = 1.0 from Table 10.2 (Capacity Manual) and
TL = 0.87 from Table 10.3b (Capacity Manual)

SVA = 348 veh/hr one direction or 5,800 ADT both directions

Service Level C

V/C = 0.5
WL = 1.0
TL = 0.87

SVC = 1740 veh/hr one direction or 29,000 ADT both directions

Service Level E

WL = 1.0
TL = 0.87

SVE = 3480 veh/hr one direction or 58,000 ADT both directions

Roadways that are structurally inadequate will experience an excessive maintenance cost with increased traffic. Unpaved roads become increasingly environmentally unacceptable because of dust when volumes increase.

TABLE 1
Sample Calculation of Service Volumes
on Typical Siskiyou County Roads

Road No.	Name	ADT Based on Service Volume Level of Service C	Remarks
1N01	Squaw Valley Road	5,524	
2H01	Gazelle Callahan	2,000	
2M02	Old Stage	4,960	
2M002	W. A. Barr	1,927	
2M55	S.Mt. Shasta Blvd.	6,200	
2M56	N.Mt. Shasta Blvd.	6,200	
6J001	Schulmeyer Road	1,448	Paved & center line section
4G005	Kellem Lane	2,500	
6K01	County Route A-12	4,733	
7K01	Montague-Ager (3 mile)	5,822	
7K08	Shelley Lane	2,923	Paved section

Actual service volumes which approach only a small percentage of the calculated volume can, on structurally deficient roads, cause severe road failures requiring reconstruction.

Environmental threshold (which is the threshold at which the County could expect a significant increase in complaints about noise, congestion and safety) will be less than the calculated service volume.

Capacity of Intersections

The amount of vehicular traffic which can approach and pass through an intersection depends on: (a) various physical and operating characteristics of the roadway, (b) environmental conditions which have a bearing on the experience and actions of the driver, (c) characteristics of the traffic stream, and (d) traffic control measures.

As can be seen from the section on "Levels of Service", speeds are used as a measure for most elements. This is of little use for intersections.

"Load factor" is used for describing levels of service at intersections. The load factor (in relation to signalized intersections) is defined as "the ratio of the number of green phases that are loaded, or fully utilized, by traffic

to the total number of green phases available for that approach during the same period." The load factor may range from a value of 0.0 to 1.0. A load factor of 0.0 represents the situation in which no cycle during the hour is loaded. It is important to stress that load factors for each approach have to be calculated separately.

As can be seen from the discussion, intersection capacity and signalization are closely related. The reason for this is that generally by the time two intersecting streets carry enough traffic volumes to warrant capacity analysis, they are signalized. It should be noted four way stop sign control is like a signal with equal green times for the two streets.

Therefore, levels of service for signalized intersections are described as:

Level A: Load factor 0.0 (no loaded cycles). No approach phase is fully utilized by traffic. Freedom of operation.

Level B: Load factor not over 0.1. Some restriction within platoons of vehicles. Stable operation.

Level C: Load factor ranges 0.1 to 0.3. Maneuverability somewhat restricted. Still stable flow.

Level D: Load factor 0.3 to 0.7. Delays for short periods. Approaching unstable flow.

Level E: Load factor of 0.7 to 1.0. (0.85) recommended). This is capacity. Unstable flow. Long queues of traffic.

Level F: No load factor can be established. Jammed conditions.

TABLE 2

Level of Service	Traffic Flow Description	Load Factor
A	Free Flow	0.0
B	Stable Flow	0 1
C	Stable Flow	0.3
D	Approaching Unstable Flow	0.7
E	Unstable Flow	1.0
F	Forced Flow	

2. ROADS LESS THAN 18 FEET WIDE CARRYING TWO-WAY TRAFFIC

It is difficult to determine the capacity of roadways less than 18 feet in width. We can safely assume that the allowable volumes will be progessively less as the width decreases. ADTs should be limited to values between 25 and 400 vehicles per day depending on width, surface condition and sight distance.

Table 3 states volumes that appear to be reasonable based on experience.

TABLE 3

Acceptable ADT One Lane Road, Two Way Traffic

Sur.Type	A/C Chip Seal			Gravel			Dirt		
Terrain	Lev.	Rlng.	Mtn.	Lev.	Rlng.	Mtn.	Lev.	Rlng.	Mtn.
Width									
17'	400	300	100	400	300	100	350	250	100
16'	400	250	75	350	200	75	300	150	100
15'	400	200	50	300	150	50	250	100	50
14'	200	150	50	200	50	100	100	50	50
13'	100	50	50	100	50	50	50	50	50
12'	50	50	50	50	50	50	50	50	50
11'	50	50	50	50	50	50	50	50	50
10'	25	25	25	25	25	25	25	25	25

D. STRUCTURAL ADEQUACY

The effect of traffic on a roadway over its design life is expressed by a number called the Traffic Index (TI). The traffic index is a convenience number to use in designing structural sections as it bears a direct relationship to the thickness of pavement required. The standard method of traffic evaluation provides the most accurate data and should be used whenever possible. This method requires obtaining truck constants, truck traffic counts classified

according to number of axles per truck (presented as average daily truck traffic), and factors to estimate increase or decrease in traffic volume during the design period.

Estimation of T.I. in Special Situations

Many times a particular road presents a unique situation and demands that the engineer use a little more judgment to arrive at a truly representative Traffic Index. An example of such a situation might occur where a road serves an agricultural or recreational area or has a heavily used rock quarry at some point along the route. Since the rock trucks would haul one way loaded and one way empty, the engineer could use a different T.I. for each direction of travel and effect significant economy in design.

Estimation of T.I. According to Road Type

In the absence of more detailed knowledge, traffic may be estimated by considering the type of facility to be designed. Estimates of traffic made in this manner tend to be inaccurate and, for this reason, should allow for a safety factor. The estimated Traffic Index should be justified by a description of the facility, the area it serves, and the normal types of traffic carried. The table below lists several road categories and the T.I. which might be expected to correspond with these categories. The last four categories in the table are difficult to estimate. Since roads in these categories are more critical with regard to repairs, due to heavier traffic, the T.I. should be estimated using either the standard method or the chart shown in Figure 1.

TABLE 4: TYPE OF FACILITY	T.I.
Minor residential streets and cul-de-sacs	4
Average residential streets	4.5
Residential collectors and minor or secondary collectors	5

CONVERSION CHART
AVERAGE DAILY TRAFFIC TO TRAFFIC INDEX

FIGURE 1

SISKIYOU COUNTY
PUBLIC WORKS DEPT.

TRAFFIC INDEX

Drawn: G.J.S. Date 6-27

Approved by: D.A. GRAVENKAMP

Major or primary collectors providing for traffic movement between minor collectors and major arterials	6
Farm-to-market roads providing for the movement of traffic through agricultural areas to major arterials	5-7
Commercial roads (arterials serving areas which are primarily commercial in nature)	7-9
Connector roads (highways and arterials connecting two areas of relatively high population density	7-9
Major city streets and thoroughfares and county highways	7-9
Streets and highways carrying heavy truck traffic. This would include streets in heavily industrialized areas	9+

For subdivision traffic only, it is permissible to use the chart shown in Figure 2. This chart relates Traffic Index to the number of houses served. It should be emphasized that this chart applies only to residential and residential collector streets. Streets carrying other traffic through the subdivision and streets going by a commercial area should not be analyzed by a house count chart.

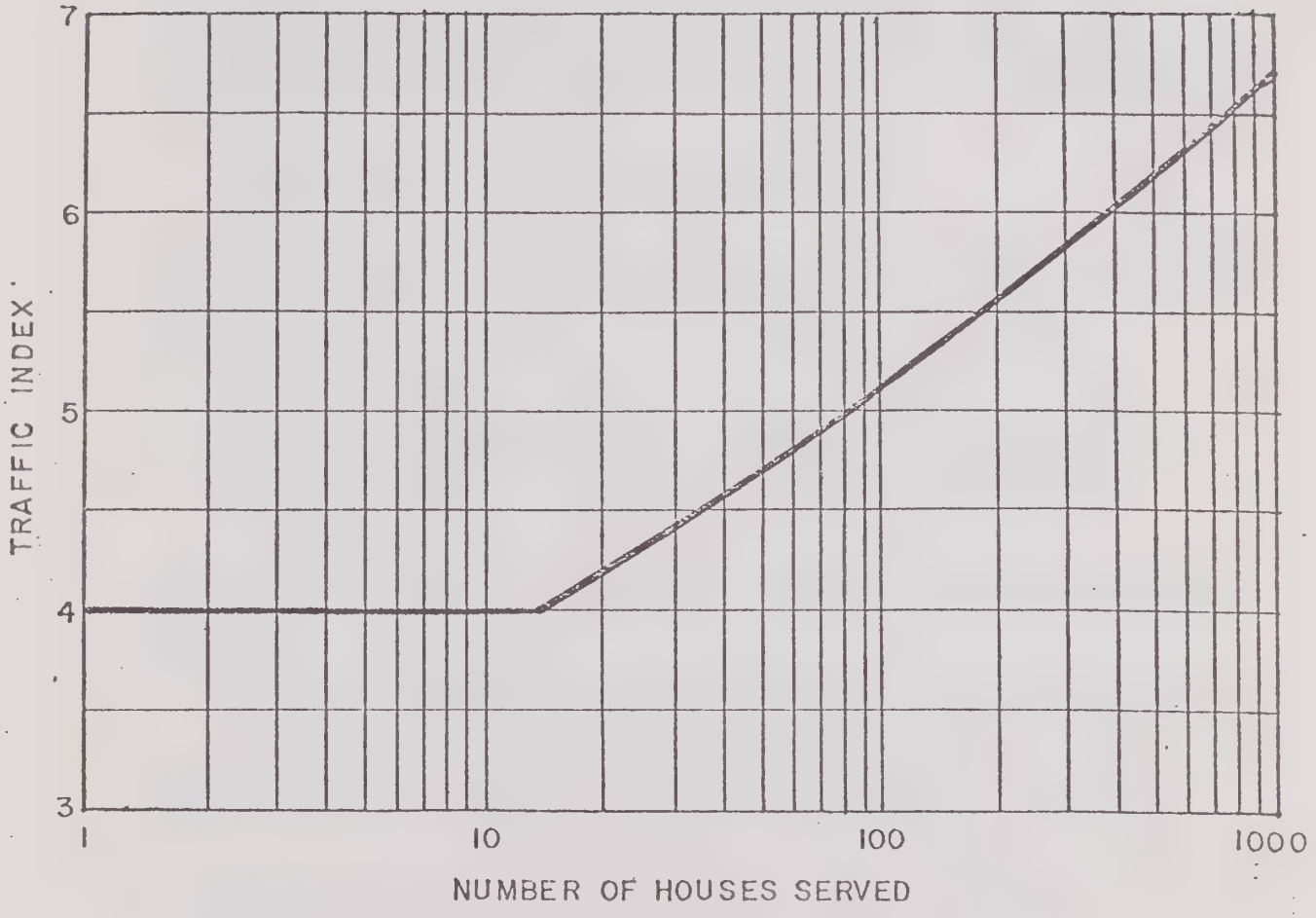
Prior to the use of this chart, the engineer should consult with the area planners as to future plans for temporarily dead end streets. Many times either commercial developments tie into residential collectors, or the collectors are extended to serve much larger areas.

The chart is based upon each residence generating an average eight trips per day. Truck traffic is assumed to be three percent of the subdivision traffic. The truck traffic is assumed to consist almost exclusively of 2-axle and 3-axle vehicles.

E. ISSUES

Included is a listing of issues and problems that confront the county in terms of providing adequate and safe transportation facilities. Some problems have been discussed previously in the section devoted to the characteristics of County, Forest Service and private roads and their use. The intent is to summarize those issues to which the County can respond, specifically county and

CHART FOR ESTIMATION OF TRAFFIC INDEX USING A HOUSE COUNT



Notes: For use only within subdivisions for residential and residential collector streets.

Chart is based on a 10-year design life.

FIGURE 2

SISKIYOU COUNTY PUBLIC WORKS DEPT.	
TRAFFIC INDEX	
Approved by: D. A. GRAVENKAMP	Drawn: G.J.S. Date: 4-28-8

private roads. U.S. Forest Service road policy will be presented ~~separately~~ in a section following the policies adopted for county and private roads RIGHTS-OF-WAY.(See pages 26 - 30)

The following listing of issues may be interpreted as a combination of issues, problems, needs and desires in order to meet the future requirements of the traveling public and the perceived future residential, commercial, industrial and recreational traffic needs.

1. Many county roads are constructed on prescriptive rights-of-way.

Right-of-way dedication and title is required by the County in order to responsibly provide for public needs. As adjacent lands develop, it is important to include conditions requiring right-of-way dedication.

2. Adequate right-of-way and road shoulders on rural roads are needed for maneuverability in the event of unexpected occurrences such as deer or cattle on the roadway.

This is also needed to maintain adequate sight distance, (vegetation trimming) and areas for emergency parking and installation/removal of tire chains.

3. Adequate road maintenance is needed under a variety of topographic and climatic conditions.

Right-of-way is needed to protect cut and fill areas in mountains and to provide adequate area for snow removal.

4. Ways to reduce the incident of accidents on rural roads.

Road improvement, education and law enforcement are effective ways of reducing accidents.

Those areas where accident rates are high may need study in terms of improving sight distances and traffic control. In order to provide an assessment of the county road system, it is important to review the accident (collision) data and determine if road factors contribute to the incidence of accidents. If road conditions (e.g., inadequate width, tight turns, steep grades, etc.) are a factor in the accident rate, appropriate improvements should be undertaken. The following data summarizes the accident record on Siskiyou County roads for January, 1980, through September, 1981.

TABLE 5: VEHICLE ACCIDENTS, SISKIYOU COUNTY
January 1980 - September 1981

Primary Collision Factor	Number	% of Total	Injuries	Fatalities
Unsafe speed	98	29.2	83	1
Driver under influence of alcohol	52	15.5	48	2
Wrong side of road	48	14.3	33	1
Other driver error	34	10.1	27	1
Auto right-of-way	29	8.7	17	0
Defective equipment	23	6.8	17	0
Unknown cause	22	6.5	12	2
Other	30	8.9	24	4
Total:	336	100.0	261	11

Source: California Statewide Integrated Traffic Records System (SWITRS) for Siskiyou County (annual reports)

The accident rate has remained fairly consistent over several years. The annual and monthly distribution is:

TABLE 6

Year	Total Accidents	Accidents/Month (Avg)
1974	210	17.5
1975	202	16.8
1976	221	18.4
1977	211	23.4
1980	219	18.3

5. There is a higher incidence of accidents in urbanized areas.

Tables 7 and 8 show accident frequencies for Happy Camp and McCloud areas. The tables indicate a higher incidence of accidents in Happy Camp and on major streets in McCloud. Since Happy Camp and McCloud are the more densely developed county areas, this is not too surprising.

TABLE 7: VEHICLE ACCIDENTS HAPPY CAMP AREA
January 1980 to September 1981

Primary Collision Factor	Number	% of Total	Injuries
Unsafe Speed	6	22.2	4
Driver under influence of alcohol	5	18.5	1
Wrong side of road	2	7.4	0
Other driver error	10	37.0	12
Auto right-of-way	3	11.2	1
Defective equipment	0	0	0
Unknown cause	1	3.7	0
Other	0	0	0
Totals:	27	100.0	18

Source: California Statewide Integrated Traffic Records System (SWITRS) for Siskiyou County (annual reports).

TABLE 8: VEHICLE ACCIDENTS, McCLOUD AREA
January 1980 - September 1981

Primary Collision Factor	Number	% of Total	Injuries
Unsafe speed	2	11.2	2
Driver under influence of alcohol	4	22.2	2
Wrong side of road	4	22.2	2
Other driver error	4	22.2	3
Auto right-of-way	0	0	0
Defective equipment	0	0	0
Unknown cause	4	22.2	3
Other	0	0	0
Total:	18	100.0	12

Source: SWITRS (annual reports).

From the overall county data (unincorporated county only), it is not readily determined when road deficiencies contribute to accidents. Obviously, more of the primary reasons are the responsibility of the drivers involved. The "unknown cause" and "other" factors, including pedestrian and animal collisions, may bear some relationship to road conditions and have planning implications. "Unsafe speed" has some relationship to better design and construction.

6. Provide adequate roads for tourist and seasonal use.

A sub-issue is the question of providing safe and adequate access points to rivers, streams, lakes and other natural features of interest along county roads.

7. Balancing environmental protection with the demand factors listed previously since roads are subject to landslide, rock fall and snow conditions which require special consideration.

8. Methods to assure the orderly and consistent development of private roads and transition into the public system, if appropriate.

F. NEEDS

Transportation accident rates are relatively low in the county, except for a few heavily traveled arterials.

The major county transportation needs, in addition to safety, are:

1. Systems which insure speedy delivery of basic public services which include law enforcement, fire protection, medical care, education and mail to all inhabited areas.

2. A road system that supports the County's chief economic activities - logging, agriculture, recreation, industry and commercial centers.

3. Separate and adequate facilities for non-motorized travel (bicyclists, equestrians, pedestrians) along routes of major travel and between primary "generator" points.

4. The development of adequate and efficient "terminal facilities" (including parking, goods movement handling, convenient people service) at all points of concentrated trip ends.

G. GOALS AND OBJECTIVES

The goal of Siskiyou County should be to provide an effective, balanced and coordinated transportation system at a reasonable cost that will serve the needs of the people of the County, and that supports and helps to achieve the goals and policies of the land use element of the County General Plan.

More specifically, this transportation system would:

1. Support the planned economic and social growth of the county.

2. Enhance the provision of public services: such as education, mail, medical, fire protection, law enforcement and cultural activities.

3. Achieve a balance between collector roads and those that provide arterial mobility and reduced travel time within the county and with adjacent counties.

4. Preserve natural scenic, ecological and recreational features within the county, and enhance the planned use of these features.

5. Take into consideration the needs of those who must rely on public transportation.

6. Provide for a coordinated system between all modes of travel: such as rail, air, bus, truck, private auto, bicycle, pedestrian, equestrian, and recreational vehicles.

7. Consider the need to conserve energy.

The above transportation goals are to be achieved by accomplishing the following objectives:

a. Develop and refine a system of high standard collector and arterial roads that improves traffic safety and reduced travel time within the county.

b. Provide surfaced, all-weather roads and streets in areas of dense population and to points of major interest.

c. Provide adequate and coordinated road and street access to major rail, air, truck and bus terminals.

d. Provide, if feasible, a public transportation system within and connecting major population centers.

e. Develop, when feasible, a safe and adequate system of pedestrian walkways and bicycle routes and trails.

f. Develop, when feasible, a system of seasonal recreational access roads, equestrian, snowmobile and hiking trails where needed.

g. Maintenance of those aspects of the roadside environment that make driving on the county's scenic roads a pleasant, safe and attractive experience.

H. IMPLEMENTATION

The implementation of programs to satisfy the previously stated transportation needs may be efficiently categorized in several groups.

1. Planning

    a. Develop a plan map of future road right-of-way needs.

    b. Periodically review the county's roads and recommend inclusion of roads serving areas of statewide significance in the state highway system.

    c. Periodically review the need for changes in public transit facilities.

    d. Periodically review county road standards to insure that they are reasonable satisfying the need for safety, access and emergency service.

    e. The Planning Department should furnish a demographic plan to the Public Works Department. The plan should indicate probable future traffic volumes, population centers, etc.

    f. Public Works will consider the traffic projections when submitting work programs to the Board of Supervisors.

2. Construction

    a. Acquire adequate rights-of-way for existing county roads.

    b. Continue on a systematic basis the upgrading of roads.

3. Financing

    a. Incorporate in the capital improvement program all available means of financing and all subventions that are reasonably possible, to insure the most efficient and beneficial use of funding.

    b. Pursue efforts to obtain the maximum feasible amount of forest reserve funds for road improvements.

    c. Utilize cooperative agreements with other

public agencies to the greatest degree possible to extend local funding.

d. Develop use fee schedules that foster self-sustaining pay-as-you-go programs where feasible.

e. Explore the use of subventions for the construction of equestrian and bicycle trails.

f. Encourage special assessments districts for the construction of special facilities such as parking lots and sidewalks.

4. Operations

a. Construction of road improvements shall consider the long-term maintenance with particular regard to: safety, slope stability, landscaping, fire hazard minimization and preserving natural scenic, ecological and recreational features.

b. Undertake and support regular programs of litter control and removal.

c. Continue snow removal policies and practices that satisfy essential needs at minimum cost to the taxpayer.

I. CIRCULATION POLICIES

In order to provide safe and adequate roads in Siskiyou County, the following policies are required:

1. Road Rights-of-Way

Policy 1: The County shall require rights-of-way consistent with the following schedule as shown on the Circulation Element (Map 14) for public roads:

Roads	Private Rt.-of-Way	Max ADT	Public Rt.-of-Way	Max ADT
Arterial	60' + *	--	66'	--
Collector	60'	5,000 (625 residents)	60'	--
Limited	40'	200 (25 residents)	40'	75'
Minimum, Less Than	40'			

* Dependent on the project size, its relationship to other development, the planned or project maximum usage and the relationship to the environmental setting.

The above standards shall not apply to any divisions that are regulated by the Land Development Manual.

Policy 2: Dedication shall be required for all land divisions in accordance with Policy 1, except in the case of a remainder in excess of ten acres. Dedication shall be by fee or by easement. The remainder is defined as the largest parcel.

Policy 3: Dedication and improvements for all other types of development shall be required in accordance with Policy 1. Dedication shall be by fee or by easement. The amount of dedication shall be dictated by the intensity of use.

Policy 4: All easements must be adequate to provide for ingress, egress, public utilities, parking and encroachments.

Policy 5: All road rights-of-way required are subject to additional slope easements when terrain necessitates such.

Policy 6: By preliminary budget time of each year the Department of Public Works shall present to the Board of Supervisors, an Improvement Program Review for county roads.

Improvement Program Review

The Department of Public Works shall assess the roads in the order of apparent need.

Based upon the review and available funding the Board will establish a proposed work program for road improvement.

On all roads where current use meets or exceeds Service Volume C, no zone change substantially increasing use or other developments within existing zones which create substantial increases in use shall be allowed until such time as the road(s) have been improved to safely handle the foreseeable increase in traffic on the road resulting from the zone change or other development.

Policy 7: The County requires that the policies adhered to by the U. S. Forest Service on roads serving private property in the several National Forests in Siskiyou County be the minimum under county jurisdiction. The U. S. Forest Service statement on access to private lands and circumstances to be considered in the evaluation of requests for use of existing roads and new construction are as follows:

STATEMENT CONCERNING USE OF ROADS ON NATIONAL FOREST LAND FOR ACCESS TO SUBDIVISIONS AND OTHER PRIVATE LAND DIVISIONS

The broad authority of the Secretary of Agriculture to protect and administer the National Forests includes the authority to acquire rights-of-way and construct roads needed for access to the National Forests. However, the Forest Service is not a public road agency and cannot accept the dedication of roads to the general public. Furthermore, adverse possession may not be used to acquire interests in a road or right-of-way belonging to the Forest Service.

Roads which are owned and maintained by the Forest Service are part of the Forest Development Transportation System. Many roads on this system are usually available for use by the general public. However, such roads are not public roads in the same sense as are state and county roads. The requisitions of the Secretary of Agriculture state that use of such rods shall be permitted for all proper and lawful purposes, but subject to compliance with rules and

regulations, a road may be closed to general public travel on certain days of the week, or during certain times of the year. Various traffic regulations such as weight and size limits may also be established. Commercial haulers may be required to pay a proportionate share of the cost of constructing and/or perform maintenance on the road.

Roads may also be closed to all vehicle use. This will take place where a road is no longer needed for National Forest purposes or where it is needed only periodically. Roads may also be closed to certain classes of vehicles and during the winter months or other periods of wet weather to prevent damage.

Not all roads in which the Forest Service has an interest are owned in total by the Forest Service. Some are owned jointly by the Forest Service and companies or individuals who have shared in the cost of construction. The use of these roads is subject to the terms of easements granted and agreements between the parties.

Roads on the Forest Development Transportation System are not public roads, open at all times to the public. The same is true for other roads on National Forest lands which are not on the Transportation System unless they are part of the road system of state or local government road agencies.

It is the position of the Forest Service that a road on National Forest land does not constitute adequate access to a subdivision or land division unless such a road is:

1. A part of a state or local government road system, or

2. The landowner has obtained a right-of-way from the the Forest Service, or,

3. Other satisfactory arrangements have been made with the Forest Service.

In cases involving subdivisions, it will be Forest Service policy to issue rights-of-way to state or local government road agencies or similar quasi government units. Such rights-of-way will normally provide primary access to a subdivision. It is Forest Service policy that roads serving the interior development of subdivisions should be constructed on subdivision land, not on National Forest land. This same policy applies to residential areas developed through lot splitting. While there is some responsibility to provide primary access to an original

parcel of land, the Forest Service has no similar obligation toward the various segments resulting from lot splitting.

The following questions and considerations are analyzed upon request for access permission and are deemed to be consistent with the previous statement on subdivision access. The statement and following considerations are determined as U. S. Forest Service policy on access to private lands.

What is the Appropriate Access to Private Land?

a. Appropriate access under the Department of Agriculture's regulations can be overland or cross-country access via foot or horseback; access by narrow width trail via foot, horseback or mechanized vehicle; access by road of varying design standards; heliport; aerial tramways and lifts; and boat.

b. In some areas of the National Forest, roads may conflict with resource values and with National Forest objectives, programs or purposes. If the proposed access would cause substantial adverse impacts on the National Forest lands, the requested access may be denied.

c. Road access can be appropriate in many areas of the National Forest. If a landowner already has access, or access is feasible over another route, including crossing other private lands, then the Forest Service is not obligated to grant access.

Use of Existing Forest Service Roads

a. Consider the present use and season of use of the existing road.

b. What is the predicted use and season of use by the landowner or his successors?

c. Will the increased use by the landowner require improvement of the road to accommodate the new use?

d. Can the Forest Service through its normal operation and maintenance procedures accommodate the additional use after the road improvement, if needed, is completed; or will it be necessary for the landowner(s) to perform his share of road maintenance under a use permit?

e. If the Forest Service can accommodate the additional use under the normal maintenance schedule, then a

permit is not needed except for any required road reconstruction or use during periods of seasonal closure to prevent road damage. The Landowner and the Planning Department would be so notified.

f. If the additional use cannot be handled under the normal maintenance schedule, it may be more appropriate to transfer the jurisdiction of the road to the County. If the County does not wish to accept the road, permits to the landowner or a property owner's association may be necessary. This permit will require sharing in the expense of performance of maintenance and posting of a bond.

Construction of New Roads

a. Can the proposed access reasonably be located on other than National Forest land?

b. Permits (or easements to the public road agency) will be denied if the applicant has no immediate need to construct and is securing a right-of-way merely to allow a land division or to increase the property value.

c. Road must be built on a location and according to plans and specifications which protect the National Forest lands and resources involved.

d. Applicant must furnish all reasonable information concerning impacts on National Forest land and necessary survey and design data to facilitate Forest Service review under the National Environmental Protection Act.

e. Road jurisdiction and maintenance responsibility for the new road can be County, Forest Service, or an association of property owners or other legal entity.

Each situation must be examined on its own to determine whether an easement to the County, a permit to an entity, or retaining jurisdiction by the Forest Service is more appropriate. A road increasingly becomes more of a road for County jurisdiction:

1. As the size or number of parcels or lots in land divisions or subdivision increases.

2. The closer the road is to existing county roads or state highways.

3. As the private lands become occupied and the proportion of subdivision or private parcel traffic to the total traffic increases, and,

4. As wet weather or winter use increases and results in the need for surfaced roads and snow removal.

If the above circumstances begin to take place, Forest Service use regulations on the specific road may require involved landowners to cooperate in the expense of performance of road reconstruction and/or maintenance. A permit to an association or quasi government unit would spell out responsibilities.

2. Public and Private Road Sections

Policy 1: The following sections shall be the designated public road typical sections (Plate 1). These sections shall be the desirable two-lane roadway section on designated county roads unless modified by resolution of the Board of Supervisors. These sections, by resolution, may be reduced due to mountainous terrain or environmental considerations only. Subdivisions, industrial and commercial developments shall conform to the Land Development Manual standards.

Policy 2: The following sections shall be the designated private road typical sections "Plates 2 through 4". These sections shall be provided on all developments not otherwise regulated by the land development manual. Subdivisions requiring final maps, industrial and commercial development shall conform to the Land Development Manual standards.

II. Public Transportation

The provision of public transportation in Siskiyou County has and will continue to present significant economic challenges due to the greater than average distances between cities and very low population densities. As the costs for all kinds of transportation increases, certain groups such as the physically and mentally impaired, the elderly, students and the unemployed, find it more difficult to provide and maintain their personal transportation services.

The majority of public transportation within the county is provided by Greyhound Bus Lines, Continental Trailways and the Siskiyou Transit and General Express, which is operated by the County and funded through the Transportation Development Act. A number of social services transportation providers also exist within the county. They are primarily

dedicated to meeting the needs of the physically and mentally impaired and the elderly in specific sections of the county. Recent actions have been taken to coordinate and consolidate as many transportation services as possible, especially where services can be improved and efficiencies increased.

The Regional Transportation Plan for Siskiyou County, as published by the Siskiyou County Local Transportation Commission, contains a comprehensive analysis of public transit within the county.

III. Airports

At present, Shasta Air operates a limited commuter airline at the Siskiyou County Airport. Existing facilities at the Siskiyou County Airport, northeast of Montague (See Map 14 for airport location) are adequate for airline service. The Weed and Butte Valley airports are adequate for limited, small twin engined service. It would be advisable to upgrade these facilities according to the recommendations in the Regional Transportation Plan (Page 24) if regular commercial service is initiated.

The following is a brief description of the seven airports in Siskiyou County. There are a number of small landing strips which are not included.

1. The Siskiyou County Airport, operated by the County is the major airport in the county. It is classified as a basic transport facility with accommodations for all general aviation including business jets.

2. The Montague-Yreka Municipal Airport, in the City of Montague, is operated jointly by the two cities. It is classified as a landing strip and provides basic facilities for small propeller aircraft. The airport is planned to be upgraded to a basic utility one facility. The Transportation Plan indicates considerable future use and growth.

3. The Weed Airport, is also operated by Siskiyou County northwest of Weed adjacent to Interstate 5. This facility may become more important because of its expansion potential in Shasta Valley, the proximity to the geographic center of the county, easy ground access and the recreational developments at Lake Shastina and Mt. Shasta.

4. Mott Airport, is operated by the City of Dunsmuir and is located between Dunsmuir and Mt. Shasta City. It is

classified as a landing strip. It is also located wi[illegible] convenient access to Interstate 5 and the two cities and the recreational opportunities of the area. Because of surrounding terrain expansion is extremely limited.

5. Scott Valley Airport, is classified as a [illegible] strip and is located between Fort Jones and Etna. It is County operated.

6. Butte Valley Airport, is County operated and is classified as a Basic Utility - Stage 1 facility capable for handling 75% of the propeller aircraft. It is located between the City of Dorris and the community of Macdoel.

7. Happy Camp Airport, is operated by Siskiyou County and is also classified as a Basic Utility Facility - Stage 1. Its expansion potential is restricted by the limited available flat land at the community of Happy Camp.

Other landing strips are located at McCloud and the City of Tulelake operates an airport in Modoc County, southeast of the city. The following is a general description of the several classifications for airports applicable to existing and proposed expansions over the next 10-20 year period.

AIRPORT CHARACTERISTICS

Symbol	Category Type	Minimum Runway Length (feet)*	Accommodates
DT	Domestic transport	5,700	Turbojet up to 175,000 lbs. (i.e., 737, DC-[illegible])
BT	Basic Transport	4,550	All general aviation, including business jets)
GU	General Utility	3,200	All current general aviation, except certain business jets
B2	Basic Utility,Stage 2	2,700	Approx. 9[illegible]% of all propeller aircraft
B1	Basic Utility,Stage 1	2,700	Approx. 7[illegible]% of all propeller aircraft
LS	Landing Strip	Under 2,200	Small propeller aircraft

*This is for a runway at sea level elevation with a mean hot day temperature of 59°F. and zero runway gradient.

Source: Regional Transportation Plan, Siskiyou County Transportation Commission, 1975

The plans envisioned for Siskiyou County airports in the Transportation Plan and the existing conditions, including average number of based aircraft, are as follows:

SISKIYOU COUNTY AIRPORTS

Airport	Existing Type	Assumed Future Type	Existing Runway Length	Future Runway Length Req.	Existing Average Based Aircraft	Assumed 1995 Based Aircraft
Montague-Yreka	LS	B2	2,715	4,200	7-15	100
Mott	LS	GU	2,700	5,150	3	13
Siskiyou County	BT	DT	7,484	7,700	6	16
Weed	LS	GU	3,700	4,900	2	32
Scott Valley	LS	B2	3,000	4,300	3	9
Butte Valley	Bl	B2	4,300	5,300	1	24
Happy Camp	Bl	Bl	3,000	3,000	2	7

IV. RAILROADS

The central part of Siskiyou County is served by the Southern Pacific Railroad main line. The route extends from Shasta County on the south to Klamath Falls, Oregon, (See Map 14 for the location of rail lines). At Weed, the SPRR divides with the easterly branch northward through Shasta Valley and Montague to Medford, Oregon. Another branch from Klamath Falls serves Tulelake. The Yreka Western Railroad provides service between Montague (and the SPRR line) and Yreka. A third railroad, the McCloud River Railroad, connects the southeastern county and the lumber mills in McCloud and Pondosa to the SPRR near Mt. Shasta City. The McCloud River Railroad also extends east to connect the Burlington Northern Railroad with the Southern Pacific line. The approximate train movements by each railroad on a daily basis are distributed as follows (the dispatcher location is shown):

Southern Pacific (Dunsmuir)	24
McCloud River (McCloud)	3
Yreka Western (Yreka)	1

Trains are used to move bulk commodities through, into and from the county. Commodities moved by rail include lumber, livestock, heavy equipment, minerals and other wood products.

The distribution of railways serves most of the urban developed areas of the county except Scott Valley and the Klamath River Valley. Because of the important and widespread access provided by the road system, the rail system is not appropriate for passenger service within the county at this time. However, if in the future, limitations are placed on individual vehicles, the rail system is an important alternative resource for goods and people movement.

FOOTNOTES

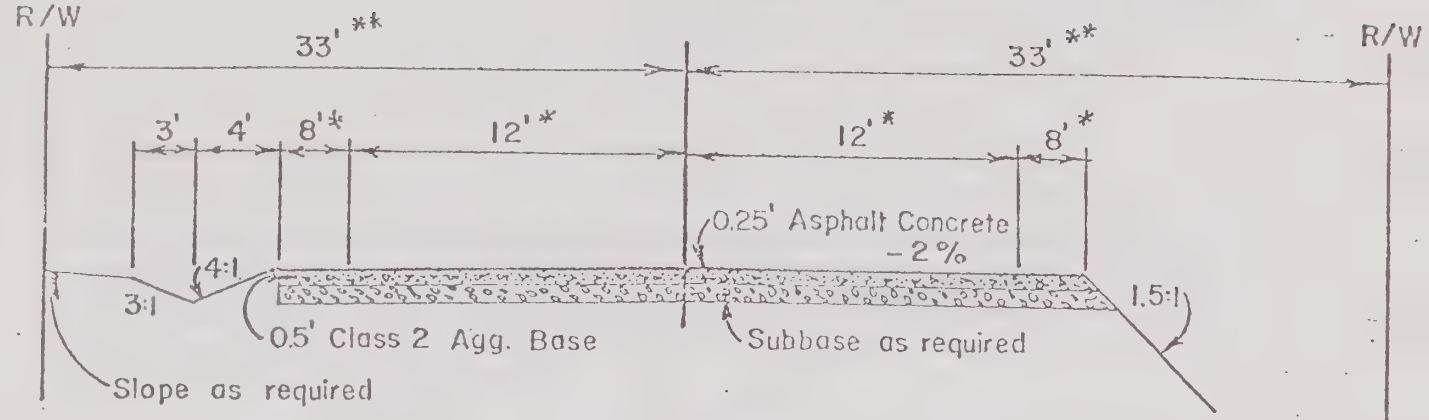
(1) Government Code Section 65080 directs each transportation planning agency to prepare a Regional Transportation Plan and to update it every two years. The Siskiyou County Transportation Commission adopted a Regional Transportation Plan in 1975 with updates in 1976 and 1977.

(2) Accident locations have been mapped by the Siskiyou County Public Works Department on an annual basis. The review of specific locations and reasons for accidents (See Page 18) has been derived from computer printout sheets provided by Caltrans for county roads.

(3) Cities, urban fringes and communities are projected to grow from an estimated 23,125 population in 1977 to 29,295 population in 1990-or 6,170 increase (2.05% annual). Rural areas are projected to grow from 14,015 to 15,705 or an annual increase of 0.93% (less than one percent).

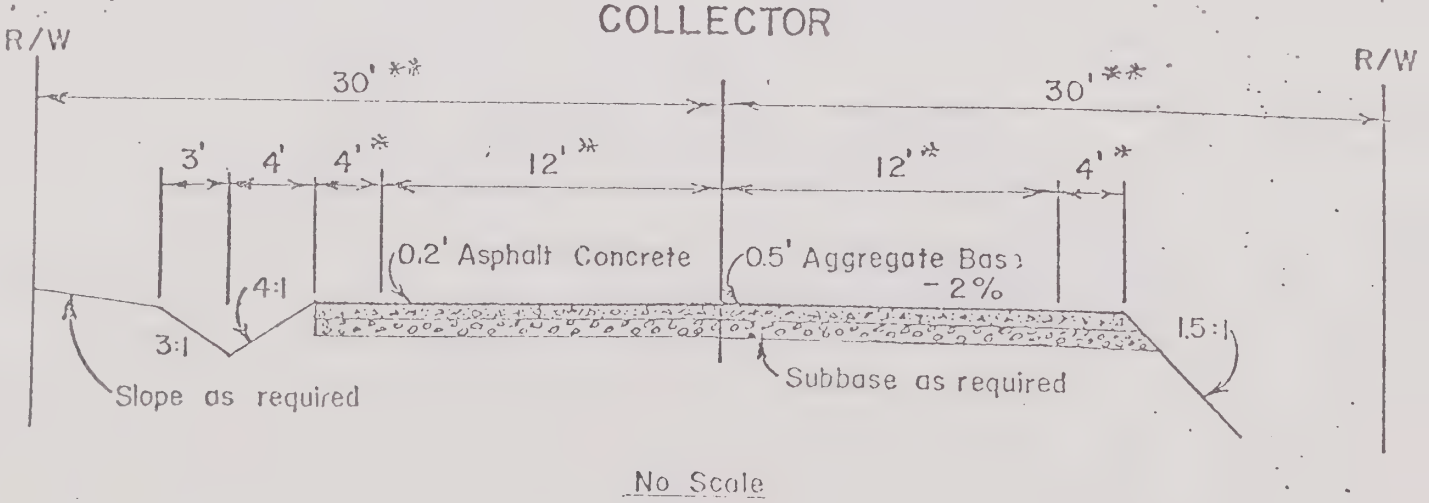
(4) See U. S. Forest Service Statement and Policies on Subdivision Access, Pages 26-30.

ARTERIAL



No Scale

COLLECTOR



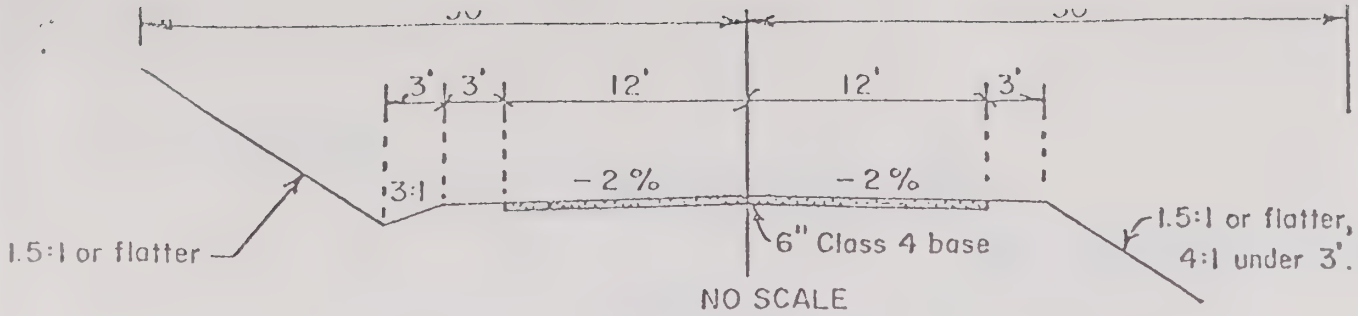
No Scale

* Distances shown may be reduced 2' in mountainous terrain when approved by Siskiyou County Board of Supervisors.

** In mountainous terrain right-of-way shall be as required to include all roadway elements.

PLATE 1

SISKIYOU COUNTY PUBLIC WORKS DEPT.	
ARTERIAL & COLLECTOR RURAL ROADS	
Approved by: D.A. GRAVENKAMP	Drawn: G.J.S. Date: 2-25-82



NO SCALE

NOTES:

1. Entire area of base and shoulders to be treated with an approved sterilent.
2. Class 4 base shall consist of approved rocky material suitable to form a stable all weather base. Angularity of 75 % of the base shall be equivalent to that of crushed particles. 100 % of the material shall be of a size that will pass through a 1 1/2" screen.
3. Maximum projected average A.D.T. = 400 V.P.D.

REVISED

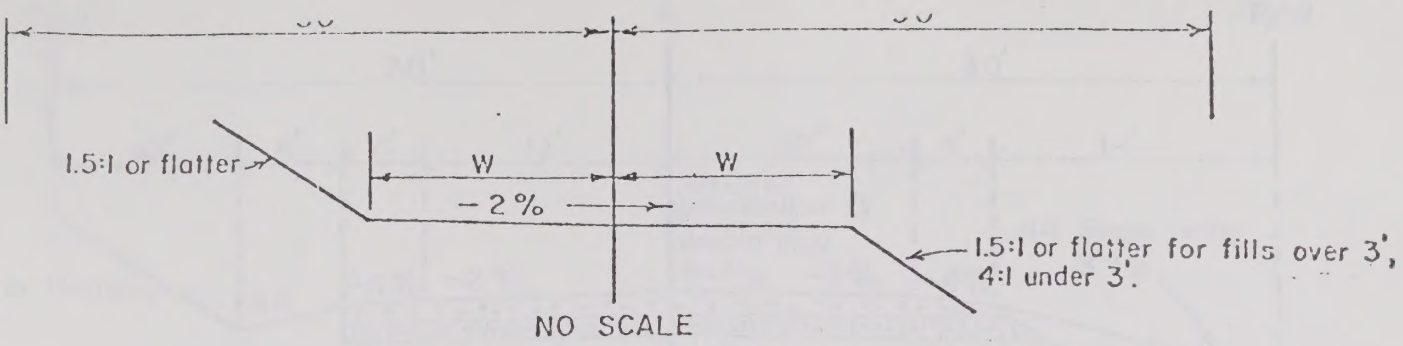
9-78	TITLE BLOCK

PLATE 2

SISKIYOU COUNTY
PUBLIC WORKS DEPT.

SECTION FOR AREAS
ZONED 5.0 TO 20.0 ACRES
SUBDIVISION STANDARDS

Approved by:	Drawn: Date
D. A. GRAVENKAMP	E.M.M. 2-14-73



NO SCALE

NOTES:

1. Entire area of roadway to be treated with an approved sterilent.
2. No sustained grades in excess of 10%. Maximum grade of 15% not to exceed 1000' per mile.
3. Curve radius 200' desireable — 100' minimum.
4. Minimum sight distance 200 feet.
5. Maximum projected average A.D.T. = 350 V.P.D.

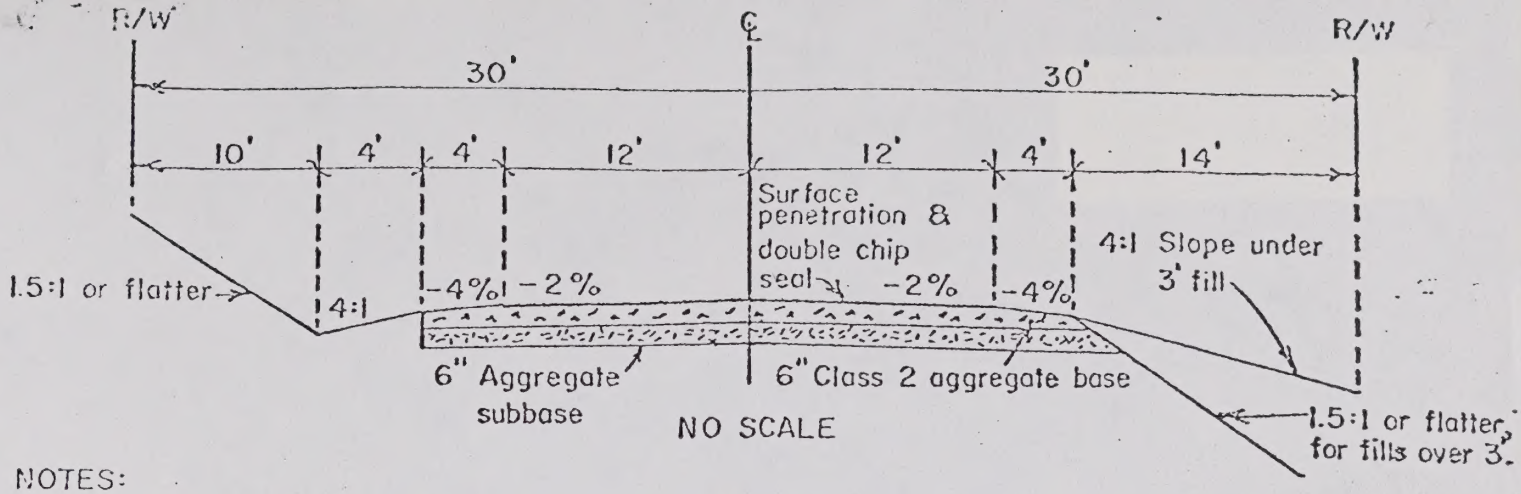
Total possible road length. *	W
1/2 mile	9 * *
1 mile	10
3 mile	11
Over 3 mile	12

* Total possible road length is that length to which the road is to be built and any future extension that may reasonably be anticipated including extensions beyond the current project limits.

* * Curves with less than 200' radius shall be widened to 10' minimum lane width.

PLATE 3

SISKIYOU COUNTY PUBLIC WORKS DEPT		
ROAD SECTION AREAS ZONED 20 THRU 40 ACRE PARCELS		
Approved by: D.A. GRAVENKAMP	Drawn: E.M.M.	Date: 7-7-7



NOTES:

1. Subbase thickness may be increased or reduced by an amount consistent with "R" value and traffic index requirements.
2. Entire area of base and shoulders to be treated with an approved sterilent before paving.
3. Penetration shall be with SC-250 spread at the rate of 0.5 gal./sq.yd.
4. Chip seal shall consist of two applications as follows, unless otherwise permitted by the county Public Works Director.
   a. First application shall consist of placing 0.35 gal./sq.yd. of MC-800 liquid asphalt immediately covered with 35 lb./sq.yd. of 1/2" x #4 screenings.
   b. Second application shall consist of placing 0.25 gal./sq.yd. of MC-800 liquid asphalt immediately covered with 20-25 lbs./sq.yd. of 1/4" x #10 screenings.
   c. At least 48 hours shall pass between each application of asphalt unless a shorter time is approved by the county.
   d. Excess screenings shall be removed from the roadway and right of way after the final seal has been completed. Removal shall be in accordance with the current "Standard Specifications".
5. All work, materials and equipment shall be in conformance with the current edition of the "Standard Specifications" of the Department of Public Works, Dept. of Transportation, State of California.
6. Maximum projected average A.D.T. = 800 V.P.D.

PLATE 4

SISKIYOU COUNT
PUBLIC WORKS DEP

ROAD SECTION
1.0 TO 5.0 ACRES
SUBDIVISION STANDARDS

Approved by:
D.A. GRAVENKAMP

Drawn: E.M.M.

Date 2-14-7